

IN THE ABSTRACT

An apparatus for replacing at least a portion of an intervertebral disc in a spinal column includes:— a first member having a first vertebral contact surface for engagement with an endplate of a first vertebral bone in the spinal column, and having a first articulation surface,⁺ and a second member having a second vertebral contact surface for engagement with an endplate of a second vertebral bone in the spinal column, and having a second articulation surface._____,—wherein:—~~a~~An intervertebral disc space is defined substantially between the first and second endplates of the first and second vertebral bones._____,—~~and at least one~~ Each of the first and second articulation surfaces ~~is~~ has a toroidal saddle shaped surface, and the articulation surfaces are sized and shaped to engage one another when the first and second members are disposed in the intervertebral disc space to enable the first and second vertebral bones to articulate in at least one of flexion, extension, and lateral bending, whereby the engaging articulation surfaces include opposing constant radius of curvature surfaces that are non-congruent.